

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

_____)	
THERMO FINNIGAN LLC,)	
)	
Plaintiff-Counterclaim Defendant,)	
)	
v.)	C. A. No.: 04-1505-GMS
)	
APPLERA CORPORATION,)	
)	
Defendant-Counterclaim Plaintiff.)	
_____)	

THERMO'S ANSWERING MARKMAN BRIEF

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Dated: February 15, 2006

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INTRODUCTION

In every instance, Applera disregards the plain, ordinary meaning of the disputed claim terms and seeks to import claim limitations it finds in the specification or elsewhere. This approach to claim construction is contrary to well established Federal Circuit precedent.

In *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*), the Federal Circuit reaffirmed that “the words of a claim ‘are generally given their ordinary and customary meaning.’” *Id.* at 1312 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The Federal Circuit also reiterated that “the claims of a patent define the invention” and that it is “an evasion of the law to construe it in a manner different from the plain import of its terms.” *Id.*; see also *Research Plastics, Inc. v. Fed. Packaging Corp.*, 421 F.3d 1290, 1295 –96 (Fed Cir. 2005) (after *Phillips*, reversing claim construction that “impermissibly limit[ed] the scope of the claim” and noting that “[t]he words in a claim are generally to be accorded their ordinary and customary meaning” (internal quotation marks omitted)).

Here, Applera *never* construes the claim terms according to their ordinary meaning, even when it concedes Thermo has proposed such constructions. Instead, Applera seeks to import limitations into the two asserted claims of the ’654 patent from other claims, from particular embodiments in the patent specification, and even from the specification of another patent.

Applera’s attempt to narrow claims based on the embodiments in the specification is again contrary to *Phillips*, which emphasized:

[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. . . . In particular, we have expressly rejected the contention that if

a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. . . . That is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.

415 F.3d at 1323 (internal citations omitted). Despite professing to rely upon *Phillips* (see *Applera Op. Br.*, D.I. 60 at 15), Applera engages in what *Phillips* describes as “one of the cardinal sins of patent law” when it repeatedly seeks to import limitations from the specification. *Id.* at 1320. Indeed, *Phillips reversed* a narrow claim construction that was based on limitations from the specification, such as the claim constructions Applera would have the Court adopt here. At issue in *Phillips* was the meaning of the claim term “baffles.” The original panel of the Federal Circuit held that, “[b]ased on the patent’s written description, . . . the claim term ‘baffles’ excludes structures that extend at a 90 degree angle from the walls.” *Id.* at 1310. The *en banc* court, however, rejected defendant’s “arguments in favor of a restrictive definition of the term ‘baffles,’” and reversed the grant of summary judgment of noninfringement. *Id.* at 1328.

Applera further asks the Court to import limitations from another patent mentioned in the ’654 patent. See, e.g., *infra*, at 9-10 (discussing the term “capillary electrophoresis”); *id.* at 19-21 (discussing the term “electroosmotic flow”). The ’654 patent mentions U.S. Patent No. 5,066,382 (the “Weinberger patent”) once and incorporates it by reference for one limited purpose, namely to describe the “operation of the thermal control” for a particular capillary electrophoresis instrument on which the

method invention of the '654 patent can be practiced. (JA 14, '654 patent, 5:10-14.)¹ Applera even concedes that the Weinberger patent was incorporated for this limited purpose. (See D.I. 60 at 30.) Nonetheless, Applera then seeks to use the Weinberger patent as some sort of wholesale limitation on every aspect of the '654 claimed invention. This is legally improper. See, e.g., *Schwarz Pharma, Inc. v. Warner-Lambert Co.*, 95 Fed. Appx. 994, 996, 998 (Fed. Cir. 2004) (unpublished); *Masimo Corp. v. Mallinckrodt Inc.*, 18 Fed. Appx. 852, 855 (Fed. Cir. 2001) (unpublished).

Even if it were proper to use the Weinberger patent as some kind of sweeping guide to understanding the '654 patent (which it is not), the '654 patent makes clear that its invention does *not* require use of the instrument described in the Weinberger patent. Instead, the '654 patent specification specifically states that the method described in the Weinberger patent is merely part of "a preferred method" of practicing the invention. (JA 14, '654 patent, 5:1-14.) Nothing in the claims, specification, or file history limits the '654 patent invention to the particular examples from the Weinberger patent that Applera cites. To the contrary, the '654 patent intrinsic record repeatedly and consistently states that the '654 patent invention is broader than the listed examples. See, e.g., *Fuji Photo Film, Co. v. International Trade Commission*, 386 F.3d 1095, 1106 (Fed. Cir. 2004) (claim terms are not limited to particular examples provided in the specification unless the specification also contains a "clear indication" of such limitation).

The cases cited by Applera as purported support for its effort to limit the '654 patent by means of the Weinberger patent speak to entirely different issues. See

¹ References to "JA" are to the Joint Appendix filed by the parties with opening *Markman* briefs (D.I. 59).

Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1283-84 (Fed. Cir. 2000) (cited in D.I. 60 at 3) (reversing judgment of invalidity in part based on erroneous jury instruction that permitted jury, not court, to determine whether and to what extent material had been incorporated by reference into allegedly anticipating reference); *In re Lund*, 376 F.2d 982, 991 (C.C.P.A. 1967) (cited in D.I. 60 at 3) (determining that statement in patent application that it was a continuation-in-part did not incorporate by reference parts of the disclosure of the earlier abandoned application not explicitly carried forward into the continuation-in-part application and, thus the omitted disclosure did not constitute anticipatory prior art).

Finally, in an apparent effort to distract attention from its legally improper approach to claim construction, Applera refers repeatedly to its capillary electrophoresis DNA sequencers that are accused of infringement and how wonderful they allegedly are. (See, e.g., D.I. 60 at 14-15, 21 n.11 & 12.) Of course, Applera's repeated references in a *Markman* brief to the accused products are also legally inappropriate. See, e.g., *Optical Disc Corp. v. Del Mar Avionics*, 208 F.3d 1324, 1333 (Fed. Cir. 2000) ("[C]laim scope is determined without regard to the accused device."); *Young Dental Mfg. Co., v. Q3 Special Prods., Inc.*, 112 F.3d 1137, 1141 (Fed. Cir. 1997) (same).²

² Equally irrelevant are Applera's assertions about the alleged "worth" of the '654 patent and the circumstances of its expiration. (D.I. 60 at 14.) As Applera must know well, such rhetoric has nothing to do with the meaning and scope of the patent claims, and can only be calculated to distract attention from the merits (or lack thereof) of Applera's arguments on that subject. Relatedly, Applera's claim that it was "impossible" to separate DNA using free solution capillary electrophoresis (D.I. 60 at 21 n. 12) is belied by other authorities that suggest the development of capillary electrophoresis in the early 1990s made it possible to test theories of free solution electrophoresis of DNA that originated in the 1980s. (See TB 15, Robert J. Meagher, *et al.*, "End-labeled Free-Solution Electrophoresis of DNA," *Electrophoresis* 332 (2005).) References to "TB" are to the Appendix to Thermo's Answering *Markman* Brief filed herewith.

I. Disputed Claim Terms

A. “Anions”³

'654 Term	Claim	Thermo Proposal	Applera Proposal
Anions	11	Negatively charged ions	Low molecular weight monomeric negatively charged ions.

“Anion” is a simple word with a commonly understood, plain meaning. Nothing in the intrinsic record narrows or disavows that plain meaning.

Applera’s proposal seeks a definition of “anions” that would exclude DNA, under the theory that DNA is neither “low molecular weight” nor “monomeric.” Absolutely nothing in the patent permits such drastic limitations to be imported into the simple term “anion.”

To the contrary, the specification states that “the present invention” covers “common inorganic *and organic* anionic species.” (JA 13, ’654 patent, 4:31-34 (emphasis added).) DNA is an “organic” anion; whether it is “high” or “low” weight has nothing whatsoever to do with the invention. Similarly, the patent teaches detection of numerous specific anions that are not monomeric, for example chloride, nitrate, nitrite, and sulfate. (JA 13, ’654 patent, 3:7.)⁴ Notably, the words “monomer” or “monomeric” never even appear in the patent. Thus, Applera’s attempt to add “low molecular weight”

³ The proposed constructions are taken from the Parties’ Amended Joint Claim Construction Chart filed on January 19, 2006 (D.I. 54).

⁴ A “monomer” is a “simple molecule which is capable of combining with a number of like or unlike molecules to form a polymer” (TB 6, *McGraw-Hill Dictionary of Scientific Terms* (4th ed. 1989).) Thus, a “monomeric” anion is capable of chemically linking with other “monomeric” compounds to form a polymer. Significantly, the inorganic ions (and many of the organic anions) described in the ’654 patent *cannot* be chemically linked to other monomers to form a polymer and thus are *not monomeric*. As one example, a chloride ion is not a monomeric anion because it is incapable of being chemically linked with other monomers to form a polymer.

and “monomeric” to the claim is contrary not only to the plain meaning of “anion,” but also to the patent specification.

Applera admits that Thermo’s proposed construction of “anions” comports with the word’s broad usage and its definition in a technical dictionary. (D.I. 60 at 15.) Nonetheless, Applera contends that the inventors “explicitly defined” the term “anions” as having “a special and more narrow meaning” that excludes all anions except low molecular weight, monomeric anions. (D.I. 60 at 19, 21.) This is a pure fabrication; the inventors did nothing of the sort. Even in the portions of the specification cited by Applera (D.I. 60 at 16-17), the inventors described the usefulness of the invention broadly (detection of “common inorganic and organic anionic species”) and only said that the invention was “particularly suited to” detection of certain kinds of anions. This is a far cry from a restrictive “explicit definition” of “anions” as Applera asserts.

Applera points to nothing in Thermo’s patent specification (because there is nothing) akin to an explicit definition that over-rides the ordinary meaning. Applera’s argument is thus no more than a forbidden attempt to limit the claim term to a preferred embodiment. *See, e.g., W.E. Hall Co. v Atlanta Corrugating, LLC*, 370 F.3d 1343, 1350 (Fed. Cir. 2004) (noting that for patentee to act as his or her own lexicographer, the written description or prosecution history must unambiguously redefine the term); *York Prods., Inc. v. Central Tractor Farm & Family Center*, 99 F.3d 1568, 1572 (Fed. Cir. 1996) (to redefine a term, there must be an “express intent to impart a novel meaning”).

Nothing in the intrinsic evidence supports Applera’s argument that the inventors used the word “anions” to refer only to those anions having low molecular weight. Even the first sentence of the patent describes the invention broadly as relating to “the

separation of common anionic species using capillary electrophoresis.” (JA 12, ’654 patent, 1:7-9.) Although Applera suggests that expressions such as “common anionic species” and “common inorganic and organic anionic species” are somehow synonymous with the “low molecular weight” limitation it seeks to import into the claims (to try to exclude DNA) (D.I. 60 at 16), they are not. By Applera’s own admission, at the time of the filing of the ’654 patent, capillary electrophoresis was being used to separate a variety of anions, including DNA. (D.I. 60 at 21 n.11.)

Applera’s reliance on the specification’s reference to “small analytes” is misplaced. (D.I. 60 at 16.) The specification states only that “capillary zone electrophoresis (CZE) is a powerful and efficient method to separate small analytes.” (JA 12, ’654 patent, 1:18-20.) CZE is just one specific type of capillary electrophoresis in which the broader invention can be used, as the ’654 patent makes clear. (*Id.*) Merely saying that something is “powerful and efficient” for one purpose is hardly a disclaimer of uses for all other purposes.

Equally misplaced is Applera’s reliance on statements in the specification that the invention “is *particularly* suited to detect such common low molecular weight inorganic and organic anions such as chloride, nitrate, nitrite, sulfate, and oxalate.” (JA 13, ’654 patent, 3:5-8 (emphasis added).) The fact that the invention is “particularly” suited to one purpose means that it is also suited to others. The purpose of this phrase is not to limit the meaning of the term “anions” or the scope of the invention, but rather to signify its special usefulness in detecting the identified anions. This is made clear by what follows (and Applera omits): “many of these anions have been difficult to detect . . . in the past.” (JA 13, 14, ’654 patent, 3:8-9, 5:47-48.)

Applera's assertion that "every anion listed or exemplified" in the '654 patent is a low molecular weight ion is irrelevant. *See Phillips*, 415 F.3d at 1323 ("In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims must be construed as being limited to that embodiment . . ."). Given the inventors' statements that their invention was useful for detecting anions generally, they hardly needed to list every type of anion. It is also unclear what Applera means by "low molecular weight." Some DNA molecules could be considered "low molecular weight" as compared to other polynucleotides. There is no clear breakdown as to what constitutes "low" versus "high." Notably, in the patent specification, the inventors qualified what they meant by "low" molecular weight by providing specific examples. (JA 13, '654 patent, 3:5-8.) There is no basis to turn those examples into a claim limitation. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 908-09 (Fed. Cir. 2004) (holding that although all embodiments described in specification included a "pressure jacket," district court should not have imported such a limitation into claims where there was no "clear disclaimer" of embodiments lacking pressure jacket).

Applera's attempt to equate the invention of the '654 patent with the content of the inventors' research disclosures is also factually and legally unfounded. The research disclosures describe some of the inventors' work on the invention, to be sure, but Applera offers no reason why the patent should be confined to the scope of these narrower research disclosures.⁵ (*See* D.I. 60 at 17-18.) Even according to Applera, the inventors characterized these research disclosures to the Patent Office during prosecution as the

⁵ The first research disclosure was limited to the use of a particular electroosmotic flow modifier, diethylenetriamine. (*See* JA 98.) The second concerns the use of phthalate as a carrier electrolyte. (*See* JA 99.) The third concerns two different buffers, phthalate for organic acids and 1, 2, 4, 5 benzene tetracarboxylic acid for anions. (*See* JA 104.)

“joint work” of the inventors on the invention described and claimed in the patent. (D.I. 60 at 18.) This is hardly a “special and narrow” “definition” of the claim term “anions.”

Finally, Applera’s argument that construing “anions” as “negatively charged ions” would render the claim invalid under *Wang Laboratories, Inc. v. America Online, Inc.*, 197 F.3d 1377, 1381 (Fed. Cir. 1999), is both wrong (for reasons stated above) and irrelevant. Whether the written description requirement is satisfied is a question of fact separate from claim construction. *See Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998) (cited in D.I. 60 at 19); *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998) (cited in D.I. 60 at 19-20).

B. “Capillary Electrophoresis”

'654 Term	Claim	Thermo Proposal	Applera Proposal
capillary electrophoresis	11	Electrophoresis, or the movement of ions under the influence of an electric field, that takes place in a capillary tube.	A chemistry technique which utilizes the difference in solute electrophoretic velocity to isolate the various components of a sample in a capillary.

For its construction of “capillary electrophoresis,” Applera does not rely on the '654 patent. Instead, it relies on a different patent — the Weinberger patent, which the '654 patent inventors incorporated by reference solely for its disclosure of thermal control on a particular capillary electrophoresis instrument.⁶ As noted in Thermo’s Opening Brief, it is improper to use a patent incorporated by reference for a narrow purpose to construe the meaning of an unrelated term. (Thermo Op. Br., D.I. 57 at 17-18) (citing *Schwarz Pharma, Inc. v. Warner-Lambert*, 95 Fed. Appx. 994, 996, 998 (Fed. Cir.

⁶ Applera recognizes the purpose for which the Weinberger patent was incorporated. (See D.I. 60 at 30 (“The '654 patent discloses only one method for maintaining the temperature inside the capillary by incorporating by reference the thermal control described in the [Weinberger] patent.”).)

2004) (unpublished); *Masimo Corp. v. Mallinckrodt Inc.*, 18 Fed. Appx. 852, 855 (Fed. Cir. 2001) (unpublished).) Because the Weinberger patent was incorporated by reference for a reason unrelated to describing or defining capillary electrophoresis, Applera's argument that the inventors of the '654 patent "acted as [their] own lexicographer and clearly defined" capillary electrophoresis when they referred to the Weinberger patent is unfounded. (D.I. 60 at 22.)

Applera's suggestion that recourse to the Weinberger patent to define "capillary electrophoresis" is necessary because the specification of the '654 patent does not define "capillary electrophoresis" is also incorrect. (D.I. 60 at 23.) In fact, the description of capillary electrophoresis in the "Background of the Invention" section of the '654 patent discusses each of the aspects of capillary electrophoresis that Thermo has included in its proposed construction, namely that capillary electrophoresis relies on the "electrochemical properties" of the ions, such as their "ionic mobility," for the movement of ions in the capillary. (JA 12, '654 patent, 1:7-18.) Applera never suggests that Thermo's proposed construction is inaccurate.

Thermo's proposed construction is faithful to the specification of the '654 patent itself and will assist the jury. Applera's construction, if nothing else, would not assist the jury because it would itself require construction (for example, "electrophoretic velocity" and "isolate" are not defined or discussed in the '654 patent).

C. Carrier Electrolyte

'654 Term	Claim	Thermo Proposal	Applera Proposal
carrier electrolyte	11, 15	An electrically conductive fluid medium that carries or transports ions.	Any electrically conductive fluid medium

Applera contends that Thermo's proposed construction "contradicts the inventors' express definition." (D.I. 60 at 23.) This is not true. Thermo has taken the "express definition" contained in the specification and added terms that make its meaning clear to laypersons. Thermo's construction is consistent with the plain meaning of "medium" as a substance used to "transmit[] or carr[y]" something else. (Thermo Op. Br., D.I. 57 at 19.)

Thermo's construction makes the definition easier for the jury to understand and will better assist the jury than Applera's proposed construction.

D. "Target Temperature"

'654 Term	Claim	Thermo Proposal	Applera Proposal
Target temperature	11	A selected temperature.	A preselected temperature of the fluid in the capillary prior to introducing the sample into the capillary and applying an electrical current to the capillary.

Applera seeks improperly to limit the term "target temperature" to a particular embodiment in the specification.

First, Applera argues that Thermo's proposed construction of "target temperature" as "a selected temperature" "begs the question: The selected temperature of what?" (D.I. 60 at 26.) However, that question is answered by the claim language itself: "heating or cooling *said capillary* to a target temperature" (JA 16, '654 patent, 9:38-39 (emphasis added).) *See Phillips*, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."). The jury will have no difficulty understanding that it is the capillary that is heated or cooled to a "target

temperature.” The specification is also consistent with this use of the term “target temperature.” (See JA 12, ’654 patent, 2:40-41 (“heating or cooling the capillary to a target temperature”); JA 13, ’654 patent, 3:59-64 (“For example, at a capillary temperature of 20° C., nitrate will elute from the capillary column prior to sulfate. At capillary temperatures of 40° C. and above, that order of elution is reversed and can be observed so that these ions may be readily identified and tracked.”); JA 14, ’654 patent, 5:8-9 (“in which the capillary is maintained at a precisely controlled temperature”).)⁷

Contrary to Applera’s proposed construction, the claim never refers to the target temperature of any *fluid*. Nor does the claim refer to heating or cooling any fluid. Applera’s sole citation to the use of the word “fluid” in the specification (D.I. 60 at 24-25) does refer to “precise control of the temperature of the fluid in the capillary column” (JA 12, ’654 patent, 2:26-29), but “target temperature” is not discussed there. Of course, it is an objective of the invention to maintain the temperature of the fluid, and there is a correlation between the capillary temperature and the fluid temperature. But the claim itself employs “selected temperature” to modify “said capillary.” There is no reason or justification to alter this language to refer to the “fluid” instead of the capillary.

Applera next argues that “target temperature” should be limited to require that the capillary be heated or cooled to the target temperature “before a sample is introduced.” (D.I. 60 at 25.) But, the claim never says this, nor does the specification teach this. It is a well-accepted principle of claim construction that the steps of a method claim are not ordinarily limited to the order in which they are recited. See *Interactive Gift Express, Inc.*

⁷ The Weinberger patent, which the ’654 patent incorporates by reference, uses the term “target temperature” to the same effect. (See JA 205, Weinberger patent, 3:38-40 (“The object is to cool and/or heat the capillary to a particular target temperature.”).)

v. Compuserve, Inc., 256 F.3d 1323, 1342 (Fed. Cir. 2001) (“Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one.”). No recitation of a particular order is made in the claim here. Applera’s proposal thus violates another specific tenet of claim construction.

Applera relies on the Weinberger patent for its proposed limitation concerning the order of temperature selection and sample introduction. Applera is improperly attempting to import the particular procedure described in the Weinberger patent specification into the claim construction. The ’654 patent claims (and specification) are not limited to the particular procedure described in the Weinberger patent.

Importing limitations from a patent’s specification into the claims is legally improper, and importing limitations from *another* patent’s specification into a patent’s claims is doubly improper. As Applera concedes, the Weinberger patent was incorporated by reference into the specification of the ’654 patent for the purpose of describing one method of “maintaining” the temperature (*see* D.I. 60 at 30); the Weinberger patent was *not* incorporated to limit how the target temperature is set or selected. Furthermore, while the Weinberger patent *specification* describes temperature selection as taking place before sample injection, its *claims* do not recite a particular order. (*Compare* JA 209, Weinberger patent, 11:65-12:5, *with* JA 211, Weinberger patent, 15:1-16:20.) Under settled law it would, therefore, be improper to limit the method claim of the Weinberger patent (claim 3) to a particular order, *see Interactive Gift*, 256 F.3d at 1342, let alone to use the Weinberger patent to import such a limitation into the ’654 patent.

Finally, Applera's addition of "applying an electrical current to the capillary" is unfounded. The patent does not claim or require this limitation, nor does such a limitation help the jury understand "target temperature." Indeed, it remains entirely unclear what this extra limitation means, or why Applera wants it to be added. This extra limitation has nothing to do with "target temperature," and it should not be part of the claim construction.

E. "Detecting Said Anions By Simultaneously Monitoring Said Sample at Two Different Wavelengths"

'654 Term	Claim	Thermo Proposal	Applera Proposal
Detecting said anions by simultaneously monitoring said sample at two different wavelengths	11	Detecting the anions by monitoring the sample at two different wavelengths at the same time.	Detecting the anions in the sample by simultaneously monitoring the absorption of two different wavelengths of light, one of which is not absorbed by the anions.

Applera proposes the addition of two limitations to this term that do not appear in the claim language: (1) that the detection be by "absorption," and (2) that one of the wavelengths "is not absorbed by the anions." (D.I. 60 at 26.) Applera's overall goal is to limit the type of detection to "an *indirect* detection system." (D.I. 60 at 28 (emphasis in original).)

Applera's proposal that the claims are so limited is incorrect. In order to detect anions using light, a scientist measures light at a given wavelength. How that measurement is accomplished — *e.g.*, by absorption or by fluorescence, and directly or indirectly — is a detail of implementation. Claim 11 claims detection broadly: "monitoring . . . at . . . wavelengths." The claim is not limited to the particular way that such measurement occurs. Applera errs by attempting to narrow the claim to a particular method of monitoring.

Indeed, the specification specifically teaches that “[d]etection of the anions may be by direct *or* indirect techniques” (JA 12, ’654 patent, 2:48-49 (emphasis added).) Additionally, the specification of the ’654 patent makes clear that monitoring for absorption is only a preferred embodiment. (See JA 13, ’654 patent, 4:65-68 (“A *preferred* detector is one which utilizes UV/visible absorbance such as a multiwavelength, scanning UV/VIS detector.” (emphasis added)).)

In addition to ignoring the language of the specification cited above, Applera’s argument ignores the fact that dependent claim 12 is expressly limited to indirect detection. (See JA 16, ’654 patent, 10:3-6 (“12. The method of claim 11 in which said carrier electrolyte contains a light-absorbing co-anion, and said anions are detected indirectly using a photometric detector.”).) Under the doctrine of claim differentiation, Applera’s argument, then, is improper. See *Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”).

Similarly, claim 1 is limited to “light-absorbing” co-anions and to detection that occurs “indirectly.” See *Phillips*, 415 F.3d at 1314 (“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.”)

Clearly, as evidenced by Claims 1 and 12, the inventors knew when and how to limit their claims to absorption and indirect detection in order to reflect accurately their invention. The omission of those limitations from Claim 11 is intentional, and Applera cannot be permitted to import those limitations into Claim 11.

Applera also misstates the prosecution history when it claims that during prosecution the inventors “clearly distinguished” claim 11 “from the prior art on the basis

that the claim at issue relates to detection of absorption of light, and more specifically to an indirect detection system, *i.e.*, one that includes monitoring of absorption at a wavelength not absorbed by the anions.” (D.I. 60 at 28.) This never happened. During prosecution, the Examiner rejected a number of the pending claims as obvious — including pending claim 15 [which issued as claim 12], which requires a light-absorbing co-anion and indirect detection. This rejection occurred in light of two references: Jones, which described “indirect photometric techniques,” and Morin, which did not. In response, the applicants pointed out, among other things, that Morin “does not relate to an indirect absorbance detection system,” such as was claimed in pending claim 15 [issued claim 12]. (See JA 122.) However, the applicants did not make this distinction in the context of the broader claim 11 which is now at issue. In sum, the distinction made to the patent office concerned a different claim (issued claim 12) which, unlike claim 11, *does* require indirect detection. The applicants never said or suggested that “monitoring” in claim 11 “means monitoring absorption, and that the two wavelengths include one at which anions do not absorb,” as Applera asserts. (D.I. 60 at 28.)

F. “Maintaining the Temperature in Said Capillary to Within $\pm 0.5^{\circ}$ C. of Said Target Temperature”

'654 Term	Claim	Thermo Proposal	Applera Proposal
Maintaining the temperature in said capillary to within $\pm 0.5^{\circ}$ C. of said target temperature	11	Maintaining the temperature in the capillary to within $\pm 0.5^{\circ}$ C. of the target temperature.	Maintaining the temperature throughout the fluid in the capillary to within $\pm 0.5^{\circ}$ C. of the target temperature by monitoring electrical resistance in the capillary and maintaining the resistance at a constant level.

Applera seeks to import various limitations into the term “maintaining the temperature in said capillary to within $\pm 0.5^{\circ}$ C. of said target temperature.” Applera’s proposal should be rejected in favor of Thermo’s plain meaning approach.

First, Applera argues that the temperature must be maintained “throughout the fluid in the capillary.” (D.I. 60 at 29-30.) There is no support in the patent for this construction, and Applera cites none. As noted above, it is improper to import “fluid” into the claim. Further, nothing in the patent supports the addition of the term “throughout.” Applera’s proposal appears to be plucked out of thin air.

Second, Applera argues that the maintenance is accomplished by “monitoring electrical resistance . . . and maintaining the resistance at a constant level.” (D.I. 60 at 30.) Again, Applera is simply fabricating new limitations. The particular *way* in which the temperature is maintained is not part of the claim. Applera is attempting to import a particular mechanism for temperature control into the claim. The claim is not so limited.

Indeed, the ’654 specification notes numerous ways of maintaining the temperature, and is not limited to the one way cited by Applera. (*See* JA 13, ’654 patent, 4:59-62 (“The temperature of the capillary tube may [also] be controlled by forced air or liquid circulating around the capillary or by placing the capillary between metal radiator plates.”))

To support its construction, Applera again turns to the Weinberger patent. (D.I. 60 at 30.) However, nothing in the ’654 patent limits its claimed methods of temperature control to those disclosed or claimed in the Weinberger patent. Moreover, Applera misrepresents the teaching of the Weinberger patent itself. The Weinberger patent teaches that “the electrical resistance of the capillary provides a means of *sensing the temperature* of the capillary ” (JA 209, Weinberger patent, 11:33-34 (emphasis added).) The electrical resistance does not “maintain” the temperature, it merely “senses” it. Applera’s reliance on the Weinberger patent is thus fundamentally flawed.

Applera's contention that "there is no customary understanding in the field of capillary electrophoresis of how the temperature inside a capillary is maintained to within a cited temperature tolerance" (D.I. 60 at 30) is both untrue and irrelevant. Initially, there clearly was a "customary" understanding as to various methods, for example those that the '654 patent itself lists. Second, the presence or absence of a "customary understanding" is no reason to import one particular method (disclosed, no less, in a different patent) into a broad, unqualified claim term.

The crux of Applera's argument is that because there was (allegedly) no "customary understanding" of how to perform temperature control, therefore the patent should be limited to one particular method. Even assuming that this argument is factually correct (which it is not), this very argument has been labeled "backwards" by the Federal Circuit. See *Fuji Photo Film, Co. v. International Trade Commission*, 386 F.3d 1095, 1105 (Fed. Cir. 2004). In *Fuji Photo*, the Federal Circuit reversed a claim construction that limited a method for assembling a film-package to one that occurred "in a darkroom." The ITC had ruled that such method must occur "in a darkroom," because that was the only method disclosed in the patent specification. The Federal Circuit ruled that the ITC, "has it backwards." *Id.* Specifically:

Absent a clear indication in the specification that the invention was limited to processes performed entirely in a darkroom, or evidence that a person of ordinary skill in the art of designing cameras would not have known how to perform those steps anywhere but in a darkroom, the scope of claim 1 is not limited to the particular method of avoiding premature exposure that was described in the specification.

Fuji Film, 386 F.3d at 1106. Thus, the '654 patent's method of "maintaining the temperature" may be limited to the one cited by Applera *only if* (a) there is a "clear

indication” in the specification that the invention is limited to this one method, or (b) the cited method was the *only* method known to those skilled in the art. Not even Applera contends that these requisites are met, a contention that would, in any event, be contradicted by the ’654 patent specification.

Applera’s contention that there was not a “customary understanding of how one measures the temperature *inside* a capillary” fails for the same reason. Moreover, the claim does not claim a method of measuring temperature “inside a capillary.” This “limitation” is simply not part of the claim.

Applera’s reliance on *Invitrogen Corp. v. Clontech Laboratories, Inc.*, 429 F.3d 1052 (Fed. Cir. 2005) is misplaced. (D.I. 60 at 31-32.) *Invitrogen* concerned construction of the inherently ambiguous terms “no detectable” and “lacks,” *not* construction of a method claim with a perfectly understandable method step (“maintaining the temperature”). *See Invitrogen*, 429 F.3d at 1076 (“Focusing on the terms ‘no detectable’ and ‘lacks,’ neither can be understood without reference to the written description.”) *Invitrogen* is thus a case about looking to the specification to define ambiguous claim terms; no such issue is presented here.

It also bears noting that in *Invitrogen*, the court found that the patent at issue there “unmistakably teaches” a *single* method. *Invitrogen*, 429 F.3d at 1076. By contrast, the ’654 patent discloses a number of methods for “maintaining the temperature,” *i.e.*, the method in the Weinberger patent (*see* JA 14, ’654 patent, 5:7-10), the use of forced air, circulating liquid, or placement between metal radiator plates (*see* JA 13, ’654 patent, 4:59-62).

G. “Electroosmotic Flow”

'654 Term	Claim	Thermo Proposal	Applera Proposal
Electroosmotic flow	15	Flow in a capillary under the influence of an electric field.	The bulk flow of liquid due to the effect of an electric field on cations adjacent to anionic groups immobilized on the capillary wall.

Thermo’s construction of “electroosmotic flow” *is* the plain and ordinary meaning of the term. Applera’s argument that the ’654 patent does not “provide a definition” (D.I. 60 at 32) is thus irrelevant: the term already had a plain meaning and was not in need of further definition via the patent specification. Notably, Applera does not argue (nor could it) that the ’654 intrinsic evidence modifies the plain meaning of the term.

Notably, Thermo’s proposed construction is consistent with definitions of “electroosmotic flow” set forth in extrinsic evidence produced in this litigation *by Applera*. (See TB 8, Richard A. Frazier, *et al.*, *Capillary Electrophoresis for Food Analysis: Method Development* 3 (2000) (“A vitally important feature of CE is the bulk flow of liquid through the capillary. This is called the electroosmotic flow”); TB 2, Glossary 66 (Nov. 11, 1993) (defining “electroosmotic flow” as “[t]he bulk flow of liquid under the influence of an electric field”).)

To the extent Applera’s criticism of Thermo’s proposed construction is caused by the fact that it omits the word “bulk,” Thermo does not object to amending its construction to read “*bulk* flow in a capillary under the influence of an electric field.”

Applera's own product literature also uses the term "electro-osmotic flow" consistently with the plain and ordinary meaning.⁸ Specifically, Applera's literature refers to "electro-osmotic flow" as "bulk liquid flow" that occurs between the "cathode" and the "anode," *i.e.*, under the influence of an electric field. (See TB 17, ABI Prism 3700 DNA Analyzer System Profile (Sept. 1998).) That definition is consistent with the one now proposed by Thermo, but inconsistent with the much narrower definition that Applera proposes.

Since "electroosmotic flow" has a plain and ordinary meaning, there is no reason at all to turn to other evidence for a different "definition." Nor is there any reason to turn to the Weinberger patent in particular, as Applera does. As noted, the Weinberger patent was incorporated by reference into the '654 patent for a *different* purpose.

At any rate, when the Weinberger patent describes "electroosmotic flow," it does so in terms similar to and consistent with Thermo's proposed construction. (See JA 205, Weinberger patent, 3:50-54 ("[E]lectro-osmotic flow is the bulk flow of a solution to the capillary tube under high voltage which occurs in most forms of capillary electrophoresis in which the interior wall of the capillary tube has not been treated.").)

Applera's proposed "definition" is thus merely a description of one type of electroosmotic flow. Yet even turning to *specific embodiments* disclosed in the Weinberger patent, Applera's proposal is inaccurate. Applera's construction does not mention or explain "a shearing movement of a diffuse layer of cations" or a separate "firmly held, dense layer" of cations, which are part of the Weinberger patent's

⁸ Thermo refers to this literature not to describe the accused devices, but merely as an additional source for confirming the plain, ordinary meaning of the term. Notably, the quoted passage concerns a description of capillary electrophoresis generally, *not* a description of any accused device.

description. (JA 204, Weinberger patent, 1:27-32.) Applera's claim to have adopted the Weinberger patent's "definition" with "minor revision" is, thus, inaccurate.⁹

H. "Electroosmotic Flow Modifier"

'654 Term	Claim	Thermo Proposal	Applera Proposal
Electroosmotic flow modifier	15	Substance that modifies the electroosmotic flow.	A small cationic molecule that neutralizes the charge on the capillary wall.

Thermo's construction is true to the plain language of this claim term as well as the language from the '654 specification which describes the "electroosmotic flow modifier" as the substance "which controls the speed and/or direction of the electroosmotic flow." (JA 12, '654 patent, 2:63-67.) No further explanation is needed for the jury to understand this term, and there is no basis whatsoever to import the very restrictive limitations that are present in Applera's proposal.

Applera's proposed construction seeks to incorporate limitations to the effect that the modifier have a particular charge — "cationic" — and that it work in a particular way, namely, that it "neutralizes the charge on the capillary wall." (D.I. 60 at 34-35.) These proposed limitations find no support in the intrinsic or extrinsic record.

Applera impermissibly seeks to limit the meaning of "electroosmotic flow modifier" to "preferred" modifiers identified by name in the specification. (D.I. 60 at 34.) This, of course, is impermissible for the reasons stated in *Phillips*. 415 F.3d at 1323 ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those

⁹ As with other of Applera's proposed constructions, its construction of "electroosmotic flow" is needlessly complicated and would confuse, rather than assist, the jury. In this instance, the proposed references to "anionic groups" that are "immobilized on the capillary wall" would themselves need construction.

embodiments.”). The specification of the ’654 patent expressly refers to a group of “preferred” electroosmotic flow modifiers and notes that “there are many electroosmotic flow modifiers known in the art.” (JA 12-13, ’654 patent, 2:67-3:1.)

The extrinsic evidence that Applera cites is actually to the same effect.¹⁰ The Grossman text (cited in D.I. 60 at 34) notes that molecules that have been used as electroosmotic flow modifiers “include” some of those mentioned in the ’654 patent. (TB 13, Paul D. Grossman, *et al.*, *Capillary Electrophoresis Theory & Practice* 23 (1992) (emphasis added) (“Grossman”).) Like the inventors of the ’654 patent, Grossman saw no reason to identify every single electroosmotic flow modifier when there were “many . . . known in the art.” (JA 12-13, ’654 patent, 6:67-7:1.) Moreover, another of the “main approaches” to controlling electroosmotic flow described by Grossman also would involve, in keeping with Thermo’s construction, the use of a chemical substance in the capillary. (TB 13, Grossman 23 (describing use of chemical derivitizing agents to covalently block charged silanol groups on capillary surface) (emphasis added).)

Applera also faults Thermo’s proposed construction for encompassing modifiers that “increase” electroosmotic flow. (D.I. 60 at 35.) However, such a modifier is contemplated by the patent specification: “[T]he method of the invention may also be carried out by including an electroosmotic flow modifier in the carrier electrolyte which controls the speed and/or direction of the electroosmotic flow of the carrier electrolyte.” (JA 12, ’654 patent, 2:63-67.) To “control” speed encompasses the ability to increase it, as well as to decrease it. Simply put, the claim term uses the word “modif[y],” which

¹⁰ Evidently, Applera inadvertently omitted from its appendix the page of extrinsic evidence it asks the Court to rely on for its proposed construction. Thermo includes it in its supplemental appendix for the Court’s convenience, without suggesting that recourse to such extrinsic evidence is necessary or appropriate here.

plainly encompasses increasing or decreasing speed. Applera, without any basis in law or fact, seeks to limit its meaning to only one of these types of modification.

Finally, it bears repeating that Applera's definition would impermissibly exclude embodiments disclosed on the '654 patent. As noted in Thermo's Opening Brief (D.I. 57 at 28-29), the '654 patent specification contemplates that the direction of the flow may be reversed. Such reversal could not occur under Applera's proposed definition, because Applera's proposal is limited to a particular type of polarity.

CONCLUSION

For the foregoing reasons, as well as the reasons discussed in Thermo's Opening *Markman* Brief, Thermo respectfully requests that the Court construe the disputed claim terms of the '654 patent in accordance with Thermo's proposed constructions.

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Dated: February 15, 2006



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CERTIFICATE OF SERVICE


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